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Introduction

Hospitals are traditionally characterized by an orientation to diagnosing, curing, and caring for severe illness episodes in *patient* careers (and increasingly also for the continuous care for chronic patients at repeated points of contact); hospitals are often life-saving. However, it is no exaggeration to say that hospitals are in many aspects also highly pathogenic. Not only is it the very core business of hospitals to deal with the results of pathogenic or entropic processes in patients (possibly with obstetrics as one exception). But the hospital as a setting also contains specific pathogenic dangers and risks (e.g., nosocomial infections, medical errors, and hospitalization effects), and radical life-saving interventions often need to be performed that have themselves a certain pathogenic potential. Therefore they need to be precisely targeted, such as an operation or chemotherapy, if they are to produce more benefit than harm, and need to be performed by highly specialized and skilled personnel. For this reason, there is a natural knowledge and power divide between healthcare staff (especially doctors) and their patients, with patients being often resigned to a rather passive role. Health researchers have repeatedly stressed the need to actively include patients in healthcare decisions and processes in order to achieve optimum outcomes (Coulter & Ellins,

2007). In light of the ageing of populations and the increasing proportion of patients with long-term chronic conditions, this demand appears more timely than ever.

Informed consent and shared decision-making movements are one reaction to this problem. They demand that patients need to be informed about and consent to treatment options. Yet this approach is often more a safety belt for medical staff, preventing them from being sued in the case of negative treatment outcomes, rather than a real integration of the patient in decision processes. In addition, the currently predominating culture of prevention (compare Dietscher & Pelikan, 2016) raises the fear to be sued for preventable medical errors. According to estimates, such errors affect one in ten hospital patients to some degree. In reaction, healthcare personnel recommend medical tests, and perform treatments, that are often not necessary. Gigerenzer and Gray (2011) call this approach ‘defensive medicine.’

Hospital economics often have similar effects. Especially when financing mechanisms are performance-based, medical interventions are sometimes performed according to business plans rather than to meet patient needs (resulting in huge differences in the numbers of medical interventions that are performed in different countries and hospitals), often causing unnecessary risks to patient safety. Furthermore, medical interventions are often performed with a rather short-sighted perspective, not considering long-term implications for the quality of life. When discharged from hospitals after ever-shorter stays, patients often find themselves left alone with, and overwhelmed by, the challenges disease-specific self-management can pose.

Hospital staff, too, are confronted with many health-related stressors. They are amongst the professional groups with the highest health risks (Eurofound, 2012). These include the exposure to biological, chemical, and nuclear agents, physical strains from lifting patients or working in strenuous postures (such as in surgery), the need to perform shift work, having to cope with a high and difficult-to-plan work load, being continuously confronted with suffering and

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death, having to communicate interprofessionally, interhierarchically and between units, and having to cope with ongoing healthcare reforms.

The result is high fluctuation rates, which in turn confront hospital management with the necessity to maintain, or improve, the quality of services with ever-changing personnel. The situation is not eased by the ageing of populations and by the raising of retirement ages. Staff need to perform for more life years than in the past while at the same time the number of patients needing treatment, and the complexity of their conditions, are also on the rise.

Concerning *people in the neighborhood and catchment area*, hospitals traditionally do not have that many points of direct contact. However, their mere functioning can have saluto- or pathogenic effects on their surroundings. Hospitals are large consumers of energy and goods; they create traffic and produce potentially dangerous waste, such as toxic wastewater and emissions. Thus, decisions taken by the purchasing department, for example, on buying local and biological food for the canteen, architectonic decisions that may have implications for the amount of energy needed to heat or cool the building, and the quality of waste management systems all contribute to saluto- or pathogenic impacts for people in the nearer or wider neighborhood.

In addition, hospitals are large consumers of healthcare budgets and, as such, use scarce resources on a comparably low number of people. WHO-Euro's current health policy, Health 2020, maintains that 'we continue to spend far too little on health promotion and disease prevention compared with treatment. Health 2020 argues strongly that this balance needs to change in favor of upstream interventions to prevent the later human and economic burden of end-stage disease and disability' (WHO, 2013).

Numerous reform concepts have already been initiated from different angles, aiming at improving the salutogenic effects of health services:

- Patients' rights movements have led to the appointment of ombudsmen and patient attorneys. While in principle this is a positive development, a potentially dangerous side effect is a culture of not openly communicating about error in hospitals, by that missing chances for improvement.
- In the wake of the hospital quality movements, the concept of co-production of health was introduced, as healthcare staff became increasingly aware that treatment outcomes are suboptimal without the cooperation of the patients.
- Evidence-based medicine, with its criteria of scientific evidence, staff competencies and patient preferences,

aims at supporting rational healthcare decisions and omitting unnecessary interventions.

- Concepts for integrative care aim at supporting patients through their whole patient journey, not only the rather short hospital stay.
- Supranational agents like the World Health Organization are increasingly concerned about healthcare's ability to tackle noncommunicable diseases and have been developing global action plans in which health services are seen as one of many actors who need to cooperate with others.
- Health promotion introduced the concept of empowerment; and the patient education movements introduced the need for (critical) health literacy.
- For hospital staff, there are specific concepts of workplace health promotion.
- For people in the neighborhood and catchment area, concepts like 'sustainable' hospitals and 'green' hospitals have developed.
- Health-Promoting Hospitals (HPHs) have further strengthened hospitals' community focus by encouraging health-promoting collaborations between hospitals and other organizations, such as schools or enterprises, or by suggesting the use of hospital data to inform decisions on health-promoting community development.

The above-mentioned and other reform movements have been implemented in hospitals to very different degrees. Hospitals are characterized by comparably high levels of hierarchy, and compared to the influence of the health professionals, management has a limited role. This organizational constellation has been coined the 'professional bureaucracy' (Mintzberg, 2012). Because of these characteristics, hospital innovations very much depend on the actual motivation and behavior of healthcare professionals. Therefore, it is decisive to convince and train professionals (not only management) to achieve change. On an organizational level, following the German sociologist Niklas Luhmann (Luhmann, 2011), it is decisions that reproduce—and can change—an organization. The consequence of this theory for altering organizations is that changes, in order to be effective and sustainable, have to be enacted by the everyday decisions of the members of the organization itself, but have to be enabled by supporting structures and cultures (Pelikan, Schmied, & Dietscher, 2014). Therefore, any reform proposal coming from outside needs to address and to relate to the specific way an organization takes and supports decisions.

We apply this perspective in asking not only how hospitals can be made less pathogenic—what most of the

above-mentioned reform movements aim for—but how they could actually be made more salutogenic settings.

A General Salutogenic Orientation

In light of the above, it appears obvious that the introduction of salutogenesis provides a challenge and contradiction to the established practice of hospital healthcare. In the following, we provide some suggestions on how a salutogenic hospital could look like and what dimensions it would comprise, drawing on our understanding of Antonovsky's salutogenic orientation and model, as well as on the sense of coherence, and on our background in HPHs.

Antonovsky's (1996) salutogenic orientation introduces a resource-oriented—instead of risk-oriented—perspective on the maintenance, restoration, or improvement of health. To promote health, Antonovsky demands an orientation to salutary factors which allow people to remain on, or move further toward, the health side of what he describes as the health-disease continuum, by allowing them to handle well the stressors they are doggedly confronted with:

This orientation, which should be reflected in both research and action, should refer to all aspects of a person and to everybody, no matter where they are on the health disease continuum: A salutogenic orientation, then, as the basis for health promotion, directs both research and action efforts to encompass all persons, wherever they are on the continuum (Antonovsky, 1996, p. 14).

Taking this perspective seriously would require a rather radically changed perspective not only on current hospital healthcare practice, but also on education of healthcare professionals and on research.

First, the risk and deficit-oriented approach that is now common in healthcare would have to be replaced or at least complemented by a thoroughly resource-oriented approach. In relation to *hospital patients*, this would mean a resource-strengthening approach from the first point of contact until discharge, focusing not only on symptoms, risks, and deficits, but also on maintaining, using and improving the resources that can support recovery or at least delay the progression of disease. Since salutogenesis refers to 'all aspects of a person,' this perspective needs to encompass health and resources for health in a comprehensive, somatopscho-social sense. Accordingly, clinical research and care would have to expand from the best available medical care to asking which patients' physical, mental, and social resources (such as self-care, personal health beliefs, or social networks) are most helpful to support healing. Another important research question is how these resources can be activated.

Furthermore, encompassing "all persons, wherever they are on the health-disease continuum," would imply that *all patients*, no matter whether they are just there for a routine

check-up or in palliative care, can and have to be addressed in a salutogenic way, focusing on, and strengthening, the resources they (still) have.

And of course the resource-oriented approach would also have to be applied to *hospital staff* by ensuring that they have the resources available they need for performing their job. This could, for example, be achieved by a comprehensive workplace health promotion approach.

For *neighborhood and catchment areas*, the resource-oriented approach would mean to transform hospitals into health resources for their communities, for example by offering easily accessible and easy-to-understand health information in a hospital library, on the hospital website, or a hospital TV program, or by collaborating in joint health-oriented projects with local schools, enterprises, or administrations.

Second, in the spirit of 'do no harm,' it would be necessary to consider how far standard diagnostic and therapeutic interventions actually represent health resources—or rather risks or stressors to the health of *patients* (Ventegodt, Kandel, & Merrick, 2007). One option to avoid unnecessary stressors to health is by not applying interventions if the potential harm can be expected to outweigh the potential benefits. This could be the case, for example, for some CT scans because of the high radiation dose they incur. A specific campaign to support the aim to eliminate unnecessary or potentially harmful treatment was developed in the USA under the title "Choosing wisely" (see <http://www.choosingwisely.org>; visited on July 28, 2015).

For *healthcare staff*, doing no harm has much in common with occupational health and safety management. It is important to identify the relevant stressors, for example, by using health circles (Aust & Ducki, 2004). Wherever possible, identified stressors should be eliminated or reduced. For example, communication problems between units can be improved by changing communication routines. For stressors that cannot be eliminated, adequate compensation should be provided. For example, the continuous confrontation of staff with suffering and death is endemic to hospitals, but its effect on staff can be eased by psychological interventions or by an organizational policy on how to deal with emotional strain. Also, there will always be the need for shift work in hospitals, but much can be done to improve work organization in the sense of a good work–life balance, an approach that has also become known as 'family-friendly workplace.' A salutogenic perspective might help to identify and address these and other staff-related stressors more systematically.

For *catchment areas and communities*, finally, avoiding harm can be achieved by a safer handling of hazardous hospital wastes. For example, potentially harmful residues of medical drugs, including antibiotics, hormones, or cytostatic agents, constantly get into the environment by way of

medical wastewaters. As more and more treatments are being carried out in day clinics, those drugs also increasingly pass through the plumbing systems of regular households and might finally end up in the ecosystem.

From our comprehensive perspective on salutogenesis—encompassing patients, staff, and community citizens as target groups—follows that salutogenic interventions are not limited to interventions in persons. Such interventions include not least interventions to improve the physical hospital design. This can include ergonomics for staff or, concerning patients, quiet rooms (Hasfeldt, Maindal, Toft, & Birkelund, 2014), as well as naturally aired and lighted rooms. Light was, for example, found to make a difference on mortality after myocardial infarction (compare the study “dying in the dark” (Beauchemin & Hays, 1998)). A summary of the salutogenic effects of healthcare design (although without explicitly referring to salutogenesis) can be found in Ulrich, Berry, Quan, and Parish (2010).

Sense of Coherence

Antonovsky’s comprehensive salutogenic model puts great emphasis on characteristics that enable people to deal with different types of stressors. This seems particularly important in light of the available evidence from psychoneuroimmunology research on the impacts of stress on physical health (compare Kusnekov & Anisman, 2013). In hospitals, an orientation at this approach would demand a focus on reducing specific healthcare-related stressors for those persons who are exposed to hospitals. Furthermore, their stress-coping competences and resources need to be strengthened.

The *sense of coherence* can be understood as the most specific and focused way to operationalize Antonovsky’s concept of salutogenesis. It implies the importance of three dimensions for successfully coping with challenges—these are *comprehensibility*, *manageability*, and *meaningfulness* of life. It seems that these dimensions also relate to the functioning of the human brain (compare Rock, 2008). Attempting at reducing possible stress by improving comprehensibility, manageability, and meaningfulness of life has specific consequences for the design and organization of health services, as well as for the content of healthcare interventions.

Studies on *health literacy*—the ability to find, understand, appraise, and apply health-related information—demonstrate that *comprehensibility* of healthcare tasks is difficult for many *patients* (Sørensen et al., 2015). A lot of verbal and written healthcare communication is based on medical jargon which makes it difficult for patients to detect the meaning of what they are told or of what they read. An orientation to the sense of coherence would require that health

information be offered in an understandable way, in other words, by using plain language and writing in short sentences, and breaking content down into digestible junks of information. Written information and interpreting services should also be available in the languages of most patients. Furthermore, *comprehensibility* can be supported by healthcare design, for example, by providing easy-to-read signage (Rudd & Anderson, 2006).

Healthcare staff, too, can profit from an increased orientation to *comprehensibility*. By using communication tools like teach-back (letting patients explain what they understand in their own words), staff can develop a better understanding of their patients’ communication needs (Pelikan & Dietscher, 2015). In some cases, it may be important to improve the comprehensibility—or disease-specific literacy—of healthcare personnel before they can properly support their patients. For example, Gigerenzer (2014) found that many medical doctors are not sufficiently trained to correctly interpret healthcare statistics. They may also be deliberately misled in interpreting findings by the way study findings are presented. The result is an overestimation of the benefits of medical diagnostic and therapeutic interventions, and an underestimation of the related potential harm, which has considerable implications for treatment recommendations. On the basis of these and similar findings, the Harding Centre for Risk Literacy developed a specific format—so-called fact boxes—for presenting medical information in an easy-to-understand way. The fact boxes give absolute figures on potential benefits and potential harms of diagnostic or treatment interventions, instead of difficult-to-interpret data formats like relative risks on potential benefits alone. This information provides the grounds for well-informed healthcare decision making in a partnership between professionals and patients (<https://www.harding-center.mpg.de/en/health-information>; visited February 25, 2015).

An increased orientation to the *manageability* aspect of sense of coherence would mean that *patients*, especially those with chronic diseases (and relatives or other caregivers) are empowered as much as possible to take care of their own condition, during and between hospital stays. For those who have problems with self-management, specific support should be available, for example, in the form of case management.

For *staff*, an orientation to *manageability* would also mean a perception of one’s work life as malleable if work conditions are felt to be burdensome. Staff should be encouraged to make suggestions for improvements of the work flow, and there should be flexible options to support staff with acute problems (e.g., having to care for a family member at home).

And, for people in the hospital neighborhood and catchment area, an orientation to *manageability* would mean that

the hospital offers publicly available information about the self-management of disease, and of health enhancement, for example, via its website, at health fairs, or in cooperation with other stakeholders.

Meaningfulness, finally, can be supported by psychological or pastoral interventions that enable people to make sense of their situation as a patient or staff member. While there may be more technical solutions for improving comprehensibility and manageability, supporting meaningfulness seems to be a rather individualized process which has to be mainly achieved in person-to-person interaction.

All three aspects of the sense of coherence can be addressed in relation to challenges posed by the routine functioning of the hospital itself—interventions would then aim at improving comprehensibility, manageability, and meaningfulness of being a patient or staff member. But interventions can also address the challenges of life in general. This may be adequate for patients with long-term conditions as well as for staff whose workability suffers from personal problems.

And, while a general salutogenic orientation of hospital structures and processes might be supportive for all those in contact with the hospital, people with a low sense of coherence may need further specific compensatory support (providing help to understanding, managing, and sense-making).

Developing Organizational Capacities for Salutogenesis

From a quality perspective, and salutogenesis should be introduced into hospitals as a specific dimension of quality, it follows that salutogenic processes need to be supported by salutogenic structures in order to produce desired salutogenic outcomes. Salutogenesis should ideally be considered an organizational principle the implementation of which is supported by adequate organizational structures and capacities. Such capacities include leadership support, clear organizational responsibilities for salutogenesis, trained and experienced staff, an earmarked budget, and the inclusion of criteria and indicators for salutogenesis into continuous monitoring and improvement processes for which support from quality management might be a useful lever (Pelikan, Krajic, & Dietscher, 2001; Röthlin, Schmied, & Dietscher, 2015). The existence of such capacities would enable a continuous improvement of the salutogenic orientation of the overall daily functioning of hospitals as the centers of modern healthcare delivery systems. In addition, hospitals can support research on the role of salutogenesis in patient treatment, in designing workplaces for their staff, and in working with people in neighborhoods and catchment

areas. Not least, they can contribute to teaching and training healthcare professionals to perform salutogenic healthcare interventions.

Research on Salutogenesis as Applied to Hospitals

We will now contrast the ‘salutogenic hospital blueprint’ that we outlined above with the findings of a literature search on salutogenesis in hospitals that we performed in Medline and PubMed. Our main research question here is: how far does the available literature already refer to concepts of salutogenesis in relation to hospital structures or processes—which areas are covered, which are not? And do new areas emerge from the literature that could be used to further develop the blueprint?

We used Reference Manager as search tool to identify articles whose titles or abstracts contained a combination of one or more of the keywords salutogenesis, salutogenic, sense of coherence, or general/generalized resistance resources, with the keywords hospital, patient, doctor, or nurse, and which had been published until September 2014.

The main inclusion criterion was that papers retrieved should refer to salutogenesis or specific concepts like the Sense of Coherence (SOC) or generalized resistance resources in relation to hospital structures or processes. Papers were excluded if they met one or more of the following *exclusion* criteria:

- Clinical study with a focus on the impact of salutogenesis/SOC on the etiology of specific diseases, or other clinical study, without explicit referral to hospital characteristics or interventions.
- Focus on other healthcare settings than hospitals.
- Study on validation of measurement tool without relation to salutogenic impacts of hospital characteristics or interventions.
- Lack of conclusions in relation to salutogenesis.
- Abstract not available.

Of all 532 abstracts retrieved, 354 were excluded because they met one of the defined exclusion criteria (see Table 27.1).

The majority of excluded studies focused on the role of salutogenesis in the etiology of diseases and had no relation to healthcare as such (169 papers or 48 % of all eliminated papers). 142 papers (40 %) were excluded because they did not refer to hospitals but for example to patients in long-term care. Eight percent were excluded because their findings were not used to draw conclusions of relevance to salutogenesis. Three percent were excluded because they

Table 27.1 Defined exclusion criteria, number and percent of excluded papers per criterion

Exclusion criteria	Number papers	Percent papers
Clinical study with a focus on the impact of salutogenesis/SOC on the etiology of specific diseases, or other clinical study without explicit relation to hospital characteristics or interventions	169	47.7
Focus on other healthcare setting than hospital	142	40
No conclusions in relation to salutogenesis were presented	29	8.19
Study on validation of measurement tool without	11	3
Abstract not available	3	1
<i>Total</i>	<i>354</i>	<i>100.00</i>

Table 27.2 Search result

Keyword combination	Retrieved	Excluded	Focus on patients	Focus on staff
Hospital + salutogenesis	2	0	1	1
Hospital + salutogenic	16	6	6	4
Hospital + SOC	122	68	47	7
Hospital + GRRs	0	0	0	0
Patients + salutogenesis	35	22	13	0
Patients + salutogenic	15	12	3	0
Patients + SOC	310	224	84	2
Patients + GRRs	0	0	0	0
Nurses + salutogenesis	1	1	0	0
Nurses + salutogenic	8	6	0	2
Nurses + SOC	18	11	0	7
Nurses + GRRs	0	0	0	0
Doctors + salutogenesis	2	1	0	1
Doctors + salutogenic	0	0	0	0
Doctors + SOC	3	3	0	0
Doctors + GRRs	0	0	0	0
<i>Total</i>	<i>532</i>	<i>354</i>	<i>154</i>	<i>24</i>

described the validation of measurement tools, and 1 % of papers could not be further assessed because no (English) abstract was available.

Of the remaining 178 papers, 154 focused on patients and 24 on hospital staff. 158 (89 %) focused on the sense of coherence (of these, 140 papers on patients and 18 on staff), 20 papers on a general, usually rather unspecified and normative salutogenic orientation (of these, 14 papers on patients and 6 papers on staff), and only 2 papers focused on generalized resistance resources (compare Table 27.2).

Abstracts of the included papers were content-analyzed in order to get a deeper understanding of what aspects of

salutogenesis, the salutogenic model, and the sense of coherence or generalized resistance resources they covered in relation to hospital structures, processes, and target groups. On the basis of the results, a narrative review was produced.

Salutogenesis in Relation to Hospital Patients

Hundred and fifty-four of the included papers addressed hospital patients. The retrieved papers were published between 1991 and 2014. The majority of papers (80 %) were published by European authors, with Sweden (59 papers), Germany (14 papers), Norway (10 papers), and Switzerland (8 papers) as the top countries. Nine percent of papers were from Asia (including Israel), 5 % from North America, 4 % from Australia, and 2 % from South America (Table 27.3). Over the years, a slight rise of interest in other geographical areas, for example, in China, Japan, Brazil, and a few Eastern European countries was observed.

Over time, a visible increase of publications can be observed. Only 5 % of the 154 papers had been published in the first 5 years (1991–1995) of the observation period, about 16 % of papers respectively were published in the following two 5-year periods, and the percentage went considerably up to 28 % in the next 5-year phase (2006–2010), and rose to 34 % of papers for the period 2011–2015 (Table 27.4).

Eighty-one percent of the 154 patient-related papers refer to patients with specific clinical diagnoses. The majority of these are on frequent, severe, and chronic diseases such as heart diseases (22 %), cancers (15 %), severe mental health problems (14 %), or diabetes (7 %). Some papers also address patients with chronic conditions in general, or with rare diseases, such as *ménières* and cystic fibrosis.

Twelve percent of papers address patients more generally (e.g., ‘patients of a general hospital’), and the remaining 7 % focus on the salutogenesis of family caregivers, usually in relation to severe illnesses such as cancers (Table 27.5).

Which Concepts of Salutogenesis Are Referred to?

As was to be expected, the most widely used of Antonovsky’s concepts in relation to hospital patients is the sense of coherence (91 % of papers). A minority of the related studies apply a qualitative approach, using the SOC dimensions to structure analyses of qualitative data, such as data on patient experiences. Most of the identified studies describe quantitative measurements and analyses of the SOC (either by 29-item, 13-item, or 3-item scales). SOC scores are often related to patients’ self-perceived symptom

Table 27.3 Geographic areas from which papers on salutogenesis and hospital patients were published

Region	Number papers	Percent papers
Europe	124	80.52
Asia including Israel	14	9.09
North America	7	4.55
Australia	6	3.90
South America	3	1.95
<i>Total</i>	<i>154</i>	<i>100.00</i>

Table 27.4 Distribution of publications over time

Years	Number publications	Percent publications	Percent publications in 5-year-periods
1991	1	0.65	5.19
1992	2	1.30	
1993	0	0.00	
1994	2	1.30	
1995	3	1.95	
1996	4	2.60	15.58
1997	2	1.30	
1998	3	1.95	
1999	10	6.49	
2000	5	3.25	
2001	4	2.60	16.23
2002	3	1.95	
2003	5	3.25	
2004	5	3.25	
2005	8	5.19	
2006	4	2.60	28.57
2007	13	8.44	
2008	9	5.84	
2009	10	6.49	
2010	8	5.19	
2011	15	9.74	34.42
2012	19	12.34	
2013	13	8.44	
2014	6	3.90	
24	154	100.00	100.00

severity, disease-related quality of life, subjective well-being, mental comorbidities of somatic diseases, patient satisfaction, or self-care and coping abilities. Furthermore, some studies test their predictive value in relation to the progress of disease.

The SOC in Relation to Physical Symptoms

Amongst the patient-related papers, the majority focus on patients with specific somatic diseases, and again a large part of these cover interrelations between the SOC and physical health.

Table 27.5 Clinical diagnoses related to salutogenesis and hospital patients in the literature

Patients	Number publications	Percent publications
Heart diseases	28	22.40
Cancers	19	15.20
Mental health/illness	18	14.40
Specific care units (e.g., ICUs, palliative care units)	10	8.00
Diabetes	9	7.20
Orthopedic diseases	8	6.40
Pregnancy and conception	6	4.80
Autoimmune diseases	5	4.00
Surgery	4	3.20
Kidney diseases	4	3.20
Rare diseases	4	3.20
Degenerative neurological conditions	3	2.40
AIDS	2	1.60
Digestive system diseases	2	1.60
Side effects of diseases	1	0.80
Other diseases	2	1.60
	125	100.00

Several papers reflect on the potential impact of the SOC on self-rated health, pain perceptions, symptom severity, treatment outcomes, and physical functionality in patients. Typically, these papers test the hypothesis that higher SOC scores are related to better subjective health, treatment outcomes, and functionality.

Concerning *self-rated health*, this hypothesis was confirmed for self-rated health in patients after myocardial infarction (Gerber, Benyamini, Goldbourt, & Drory, 2009) and for pain severity (Barthelsson, Nordstrom, & Norberg, 2011; Cederlund, Ramel, Rosberg, & Dahlin, 2010; Hall-Lord, Larsson, & Steen, 1999; Karlsson, Berglin, Pettersson, & Larsson, 1999). Concerning the severity of other symptoms, Ahola, Saraheimo, Forsblom, Hietala, and Groop (2010) and Richardson, Adner, and Nordstrom (2001) suggest that higher SOC scores are related to lower HbA1c values in diabetic patients, and Bergman, Malm, Karlsson, and Bertero (2009) report less angina attacks in heart patients with higher SOC scores. Li et al. (2015) describe negative correlations between higher SOC scores, symptom duration, and symptom severity in general, and Tschan et al. (2011) see a reduced likeliness of developing secondary somatoform dizziness after vestibular disease in patients with higher SOC.

In relation to *treatment outcomes*, Ristner, Andersson, Johansson, Johansson, and Ponzer (2000) identify low SOC as a risk factor for suboptimal treatment outcomes after orthopedic injuries. And there are also positive interrelations between SOC scores and physical functionality. For example, Li et al. (2015) detect interrelations between the SOC

and daily-life impairment in patients and Schult, Soderback, and Jacobs (2000) describe weak but significant correlations between the SOC and the ability of pain patients to perform daily activities.

Overall, authors argue that the positive effects of the SOC found in the above-listed studies can either be explained by moderating effects of good mental health (which is typically related to higher SOC scores) or by better disease-specific self-management of patients with higher SOC scores, or by a combination of both. These arguments seem to be supported by the fact that the literature reports hardly any findings on interrelations between SOC scores and the severity of diseases or symptoms that do not appear to be directly amenable by self-management or good mental health. For example, in a study on Parkinson patients, Pusswald, Fleck, Haubenberger, Auff, and Weber (2009) could not detect any positive correlations between SOC and somatic health.

In contrast to the idea of the SOC being a stable construct in adults, some longitudinal studies that involved SOC measurements at different points in time (e.g., at hospital admission and at later stages) suggest that the SOC can change over time. For example, according to Bergman, Malm, Bertero, and Karlsson (2011), the SOC may decrease after a first-time myocardial infarction. However, the general perception is that SOC values return to the level before the onset of disease when symptoms decrease (see e.g., Berg & Kononova, 2009).

The SOC in Relation to Mental Symptoms, Quality of Life, and Patient Satisfaction

Studies on the SOC and mental health can be divided into two groups. One comprises papers studying the SOC in relation to mental diseases such as major depression (e.g., Skarsater, Langius, Agren, Haggstrom, & Dencker, 2005), suicidality (Sjostrom, Hetta, & Waern, 2012), schizophrenia (Eklund, Hansson, & Bengtsson-Tops, 2004; Gassmann, Christ, Lampert, & Berger, 2013), or delusional diseases (Bergstein, Weizman, & Solomon, 2008). The other group consists of papers assessing the SOC in relation to mental comorbidities of somatic diseases and issues. These include cancers (Ezer, Chachamovich, Saad, Aprikian, & Souhami, 2012; Forsberg & Bjorvell, 1996; Langius & Lind, 1995; Siglen, Bjorvatn, Engebretsen, Berglund, & Natvig, 2007), myocardial infarction (Benyamini, Roziner, Goldbourt, Drory, & Gerber, 2013), heart transplantation (Ruzyczka et al., 2011), lumbar spinal stenosis (Sinikallio et al., 2006), Morbus Parkinson (Pusswald et al., 2009), kidney diseases (e.g., Klang, Bjorvell, & Cronqvist, 1996), rheumatoid arthritis (Buchi et al., 1998), systemic sclerosis (Hyphantis et al., 2007), traumatic child birth experiences

(Stramrood et al., 2011), critical accidents (Schnyder et al., 2000), and critical diseases in general (Fok, Chair, & Lopez, 2005).

Papers overall (though not in unison) conclude that lower SOC scores are related to more severe *mental disorders or mental comorbidities*. For example, Wang, Hay, Clarke, and Menahem (2012) identify high SOC as a counter-indicator for anxiety and depression in adolescent heart patients. According to studies on uremic patients (Klang et al., 1996) and on cancer patients (Gustavsson-Lilius, Julkunen, Keskivaara, Lipsanen, & Hietanen, 2012), lower SOC scores are related to higher levels of anxieties or demoralization (Boscaglia & Clarke, 2007). With regard to diabetic patients, Wikblad and Montin (1992) conclude that lower SOC scores are related to lower self-esteem. Some longitudinal studies that assess patients' SOC at different points in time typically conclude, similar to longitudinal studies on the interrelation between the SOC and physical symptoms, that the SOC may change over time, depending on the patients' mental health conditions. For example, in a study on patients with major depression, Skarsater et al. (2005) note that the SOC increases significantly when patients recover. Similarly, Bergstein et al. (2008) point out that the SOC is reduced during phases of remission in delusional patients.

Both in relation to somatic and mental disorders, the literature is quite clear about positive effects of higher SOC scores on patients' *quality of life*. One possible explanation might be that the SOC functions as a moderator between psychological distress and health-related quality of life, as suggested by Hyphantis, Palieraki, Voulgari, Tsifetaki, and Drosos (2011) in a study on patients suffering from systemic Lupus erythematosus. Positive interrelations between the SOC and quality of life are reported for numerous conditions. These include critically ill groups of patients in general (Fok et al., 2005), heart conditions (Bruscia, Shultis, Dennery, & Dileo, 2008; Norekval et al., 2010; Ruzyczka et al., 2011; Silarova et al., 2012), cancers (Ding, Hu, & Hallberg, 2013; Drabe et al., 2015; Forsberg, Bjorvell, & Cedermarck, 1996; Henoeh, Bergman, Gustafsson, Gaston-Johansson, & Danielson, 2007; Mizuno, Kakuta, & Inoue, 2009; Paika et al., 2010), and hematopoietic stem cell transplantation (Pillay et al., 2014). Few papers focus on the quality of life in patients with rare diseases. An example is the study by Soderman, Bergenius, Bagger-Sjoberg, Tjell, and Langius (2001) on Meniere's disease. This too confirms the positive relation between the SOC and patients' quality of life.

Furthermore, the SOC is also described as being positively related to *patient satisfaction* (Larsson, 1999; Tistad, Tham, von Koch, & Ytterberg, 2012). Dubs (1999) offers a complex model in which salutogenesis is understood as one factor to explain patient satisfaction after surgery. And

Veenstra and Hofoss (2003) identify the SOC as the most important patient-related factor in relation to patients' perception of information received while in the hospital.

The SOC, Adjustment to Disease, Self-Management, and Adherence to Treatment

Another outcome of interest is the relation of the SOC to patients' *ability to adjust to a disease*, to take responsibility for their *self-care or self-management*, and to *adhere to treatment recommendations*, especially in relation to chronic diseases that require an active participation of patients in relation to maintaining their condition.

Concerning *adjustment* to disease, published findings include positive effects of the SOC in relation to myocardial infarction (Drory, Kravetz, & Florian, 1999) and ostomy surgery (Nordstrom & Lutzen, 1995).

Concerning *self-management and adherence to treatment* too, the available literature widely suggests positive effects of higher SOC scores in relation to numerous conditions. For example, Helvik, Engedal, Bjorklof, and Selbaek (2012) and Soderhamn, Bachrach-Lindstrom, and Ek (2008) describe positive relations between the SOC and the self-care abilities of elderly patients in general, Spadoti Dantas, Silva, and Ciol (2014) report positive links to coping strategies in patients with overall chronic diseases, Ahola et al. (2012) conclude that higher SOC scores in female diabetes patients are related to healthier food choices, and to more exercise in male diabetes patients. According to Pusswald et al. (2009) the SOC is related to the coping abilities of Parkinson's disease patients, while Silarova, Nagyova, Van Dijk, Rosenberger, and Reijneveld (2013) describe low SOC scores as a risk factor for limited health-related behaviors in heart patients, and Myers, Drory, and Gerber (2011) suggest relations to patients' level of leisure-time activities after myocardial infarction. Langius, Bjorvell, and Lind (1994) identify the SOC as related to the functioning and rehabilitation after oral and pharyngeal cancer, Kenne, Browall, and Gaston-Johansson (2013) note relations between the SOC and coping in women with breast cancer, and Stromsvik et al. (2007) use the SOC theory to discuss their findings on the living experiences of Swedish men with multiple endocrine neoplasia. Cederfjall, Langius-Eklöf, Lidman, and Wredling (2002) detect relations between low SOC scores and nonadherence in HIV patients. Warwick, Gallagher, Chenoweth, and Stein-Parbury (2010) conclude that a better understanding of the SOC may be helpful to support symptom monitoring and self-care in patients suffering from chronic obstructive pulmonary disease. Sjostrom, Langius-Eklöf, and Hjertberg (2004) conclude that the SOC is important for pregnant women's ability to adjust to unforeseen events in relation to their condition.

Contradictive to these findings, one study on the associations between psychosocial factors and outcomes of physiotherapy reports no relations between the SOC and motivation (Lohmann, Strobl, Mueller, Huber, & Grill, 2011).

The SOC and Social Outcomes

A small number of studies focus not only on the relations between the SOC, clinical symptoms, and subjective quality of life, but also on relations between the SOC and social outcomes. These include school achievements in adolescents with congenital heart disease (Apers et al., 2013) and experiences of stigma in mental health patients (Lundberg, Hansson, Wentz, & Bjorkman, 2009). Papers typically conclude that lower SOC scores are related to higher risks of experiencing undesired outcomes (such as low school achievement or high levels of stigma).

The SOC and Positive Health

Not surprisingly given the hospital context of this paper, most of the studies retrieved on the SOC and hospital patients are disease related. Only few studies use salutogenesis concepts such as the SOC to actually explain positive health. Examples are studies on healthy ageing respectively good health in later life by Gilhooly, Hanlon, Cullen, Macdonald, and Whyte (2007) and Schneider et al. (2004). Findings suggest positive effects of higher SOC scores.

The SOC in Relation to Gender, Age, and Socioeconomic Status

The few studies that differentiate between male and female patients, typically find lower SOC scores in females as compared to males with the same diagnosis and symptom severity (e.g., Bergsten, Hjelte, & Hochwalder, 2011; Cederfjall, Langius-Eklöf, Lidman, & Wredling, 2001; Lithner et al., 2012; Toratti, Gois, & Dantas, 2010; Wrzesniewski & Włodarczyk, 2012). Furthermore, literature suggests that the dimensions of the SOC may be of different relevance to men and women. According to a study on patients with cystic fibrosis by Bergsten et al. (2011), males are at higher risk for mental ill-health if they score low on comprehensibility while females have higher risks if they score low on manageability. With regard to patients of different socioeconomic status and different ethnicity, Silarova et al. (2013) report that members of more disadvantaged groups have lower SOC scores. Both gender- and

status-specific findings suggest that the development of individual levels of SOC may be dependent on restrictions experienced in relation to gender or socioeconomic status.

The SOC in Relation to Patients' Family Members

Caring family members—especially those of patients with severe and life-threatening diseases—and relations between their SOC, quality of life, mental health, and well-being are also a frequent theme in patient-related studies. For example, Jaracz, Grabowska-Fudala, and Kozubski (2012) and Larson et al. (2005) report on relations between the SOC, quality of life and the burden of caregivers after stroke. Caap-Ahlgren and Dehlin (2002) focus on family members of Parkinson's disease patients. Drabe et al. (2015), Ezer et al. (2006), Gudmundsdottir, Schirren, and Boman (2011), Khanjari, Oskouie, and Langius-Eklof (2012), Schmitt et al. (2008), Tang, Cheng, Lee, Chen, and Liu (2013), Tzuh and Li (2008), and Yang et al. (2012) investigate the situation and adjustment of caregivers and family members of cancer patients.

The literature generally confirms that higher SOC scores of family members reduce their risks for and levels of developing mental comorbidities in relation to taking care of an ill family member (e.g., Gudmundsdottir et al., 2011), and positive effects of good SOC scores on the quality of life of caring family members are also described (e.g., Ezer et al., 2006).

Salutogenesis in General and the Salutogenic Model

Less than 10 % of the papers retrieved referred either to Antonovsky's comprehensive salutogenic model or to salutogenesis in general. Tishelman, Taube, and Sachs (1991) suggest the salutogenic model as a framework for studying and supporting cancer patients. Wikblad and Montin (1992) use it to identify the caring needs of diabetes patients. When salutogenesis is referred to in more general terms, the concept typically remains rather vague or normative. For example, in a paper by Ventegodt et al. (2007), salutogenesis is described "as the process exactly the opposite of pathogenesis" (Ventegodt, Thegler, et al., 2007, p. 306), or authors claim "salutogenic effects" of suggested interventions, such as relaxation training during pregnancy (Fink, Urech, Cavelti, & Alder, 2012). Berger (2003) states that the theory of salutogenesis with its search for health-preserving factors can support the strengthening of patient's self-healing powers by identifying healthy parts, and Onega (1991) understands salutogenesis as a guiding concept for

psychiatric care. Referrals to salutogenesis with a slightly esoteric touch can also be found in studies on so-called *holistic care* (e.g., Ventegodt, Merrick, & Merrick, 2006).

Salutogenesis and Impacts of the Hospital Setting on Patients

In the sense of a whole systems-approach, another, still rather small strand of research focuses on salutogenesis in relation to the routine processes and physical surroundings of hospitals. For example, one paper by Hasfeldt et al. (2014) focuses on the impact of noise in ICU wards on patient experiences. Results indicate that lower SOC is related to higher perceived noise and to higher patient stress levels.

Additional papers on effects of the hospital setting that were identified by freehand search include a synthesis of the evidence of effects of healthcare design on health (Ulrich et al., 2010). Findings suggest that design is a relevant resource for salutogenic processes. More explicitly, Dilani and Armstrong (2008) bring together the concepts of salutogenesis and design, focusing on how physical environments can support understandability (e.g., by clear signage), manageability (e.g., by providing architectonic features that support functional independence), and meaningfulness (e.g., by providing areas for relaxation).

Implications for Salutogenic Patient-Oriented Interventions

What consequences for supporting patients did the researchers draw from their findings? Basically, five areas of interventions can be distinguished and will be described in more detail in the following. These are: to use the SOC as a diagnostic tool; to adapt treatment schemes to compensate for low SOC, or to improve the SOC; to strengthen patient self-management; to support caring family members; and to adapt hospital structures and routines. Overall, hospital nurses are most often suggested as those who should perform these interventions.

Using the SOC as a Diagnostic Tool

The most widely drawn conclusion from studies on patients and salutogenesis, over a wide spectrum of diseases, is that *SOC measurements enable the identification of patients in need of specific treatment, information or support* so as to achieve better targeted healthcare, better subjective health, quality of life, or self-management. Numerous authors conclude that patients' SOC scores should be assessed to inform treatment decisions and interventions (Blom, Larsson,

Serlachius, & Ingvar, 2010; Boman, Bjorvell, Langius, & Cedermark, 1999; Buchi et al., 1998; Ding et al., 2013; Drabe et al., 2015; Forsberg et al., 1996; Klang et al., 1996; Linnen et al., 2011; Matsuura et al., 2003; Myers et al., 2011; Norekval et al., 2010; Spadoti Dantas et al., 2014; Torrati et al., 2010). However, there is also some criticism to use the SOC for this purpose, since authors find its dimensions overlapping with other concepts such as anxiety or disease-related depression (Sack, Kunsebeck, & Lamprecht, 1997), suggesting that the SOC might be a proxy for mental health, well-being and functionality.

Recommendations on using SOC scores as diagnostic tools are clearly better represented in the literature than recommendations of resulting interventions. With regard to the latter, some authors (e.g., Sales, Carvalho, McIntyre, Pavlidis, & Hyphantis, 2014) see a need for more and better studies on the interplay between concepts such as the SOC, quality of life, and treatment outcomes, as a precondition for suggesting effective interventions.

Adapting Treatment Schemes

Other papers on patients already recommend specific interventions. Implicitly, most recommendations seem to focus on interventions to compensate for low levels of SOC, rather than to enhance the SOC in general or one of its dimensions. For example, it is widely suggested to *adapt treatment schemes* for patients with low SOC scores, mostly in relation to supporting patients' mental health. Interestingly, although most patient-related studies quoted in this paper focus on the SOC, most of the recommended interventions do not explicitly relate to improving or compensating the SOC or one of its dimensions. Across a wide spectrum of conditions, authors recommend rather general psychological or psychotherapeutic interventions to support patients with low SOC scores. This refers to cancer patients (Forsberg & Bjorvell, 1996), patients after myocardial infarction (Wrzesniewski & Wlodarczyk, 2012), patients with rheumatoid arthritis (Buchi et al., 1998), patients after vestibular disease (Tschan et al., 2011), or patients in need of haematopoietic stem cell transplantation (Pillay et al., 2014). Other recommendations for patients with low SOC scores include specific health promotion attention, such as the recommendation to heart patients to remain physically active (Gustavsson & Braanholm, 2003; Silarova et al., 2013). Yet another strand of recommendations calls for a "multidimensional" approach that comprises physical, psychological, and social aspects. This perspective is for example taken by Schneider et al. (2011) in a study on psoriasis patients, or by Karlsson et al. (1999) in a study on patients undergoing coronary artery bypass grafting. Richardson et al. (2001) conclude that SOC measurements may help to individualize

care for diabetes patients, Kenne et al. (2013) come to similar conclusions for supporting women with breast cancer. Cederfjall et al. (2002) suggest the development of a caring patient-provider relationship for HIV patients with low SOC scores.

However, there is also a group of papers that relate their recommendations more specifically to salutogenesis, to the SOC in general or to one of its dimensions. For example, Bergstein et al. (2008) who refer, in addition to the SOC, to the wider salutogenic model, call for interventions that may enhance elements of the SOC in patients with delusional disease, Ahola et al. (2010) formulate similar recommendations for diabetes patients, Gassmann et al. (2013) for schizophrenic patients. Pusswald et al. (2009) recommend that—in line with Antonovsky's concept of generalized resistance resources—counseling interviews with patients suffering from Parkinson's disease should include analyses of resources available to the patient. Quintard, Constant, Lakdja, and Labeyrie-Lagardere (2013), in a study on the sexual functioning of breast cancer patients, conclude that the patients' perception of available resources—in the sense of manageability of the situation—needs to be enhanced to achieve better outcomes and, also in relation to cancer patients, Gustavsson-Lilius et al. (2012) suggest promoting the SOC to enhance optimism. A paper by Bergman, Arestedt, Fridlund, Karlsson, and Malm (2012) aims at assessing which of the three dimensions of the SOC is most important for the rehabilitation of patients after first-time myocardial infarction. The authors conclude that comprehensibility is the most important dimension for this group of patients and consequently suggest that this dimension should be supported in healthcare. For patients in ICUs, Akerman, Ersson, Fridlund, and Samuelson (2013) suggest strengthening patients' sense of coherence by photo diaries. And for palliative care, in relation to manageability, a paper by Andershed and Ternstedt (1998) points to the importance of involving patients and relatives in deciding on opportunities for an appropriate death. Glazinski (2007) discusses in how far salutogenesis could become a guiding concept for neurology and psychiatry.

Less common and comparably new is the perception of the SOC being an amenable concept and of patients with lower SOC being in need of interventions to enhance their SOC. This position is taken in a study by Chenoweth, Gallagher, Sheriff, Donoghue, and Stein-Parbury (2008) on patients with Parkinson's disease. They conclude that nurses could contribute to this goal by encouraging their patients to participate in Parkinson's support groups, by teaching them self-management skills and symptom monitoring. Norekval et al. (2010) suggest that patient education might have salutogenic effects. Also, Kvale and Synnes (2013) suggest that the SOC of cancer patients can be enhanced. They explicitly refer to the dimension of manageability that can

be supported by adequate pain management strategies, while the dimension of meaningfulness may be enhanced by listening to patients' stories. Li et al. (2015) however conclude that longitudinal studies on the effects of treatment for low SOC are still missing.

Least common in the literature were tests to assess the effectiveness of specific interventions. For example, one study by Johnson, Meadows, Haubner, and Sevedge (2008) measured and compared effects of quiet reading sessions, human visits, and dog visits, on the SOC of patients undergoing radiation therapy for cancer. While all three types of interventions were experienced as beneficial by the patients, no statistically significant differences could be detected.

Supporting Self-Care and Self-Management

Papers on patients' ability for self-care or self-management typically interpret low SOC as an indication that patients should receive *specific support and training to improve self-care and self-management*. For example, in a longitudinal study on smoking cessation in survivors of myocardial infarction, Gerber et al. (2011) conclude that patients with low SOC should receive targeted help to quit smoking. Hall-Lord et al. (1999) and Hildingh, Fridlund, and Baigi (2008) call for improved *post-hospital support* for patients with low SOC scores. In these papers, low SOC at admission is typically interpreted as a risk factor for limited self-care after discharge, so that papers call for a specific support of these patients in discharge planning, such as proactively inviting family members into the planning process, and helping patients to identify resources they can use or rely upon at home. However, one study on chronic patients found that those with higher SOC scores had more hospital admissions while those with lower SOC scores were more trying to cope for themselves—which probably indicates that a higher SOC is also related to the ability to delegate caring tasks to healthcare institutions instead of struggling for oneself (compare Kirby, Dennis, Bazeley, & Harris, 2013).

Supporting Caring Relatives

Some papers explicitly refer to *supportive interventions for caring relatives*. In light of Antonovsky's theories, these can be understood as a resource for the patient that can be strengthened by targeted interventions. A specific focus of these papers is on the stress-coping abilities, for example, of family member of patients after stroke (Jaracz et al., 2012) or cancer (Ezer et al., 2006; Schmitt et al., 2008; Tang et al., 2013; Tzuh & Li, 2008; Yang et al., 2012). However, in a

study on family caregivers of Parkinson's disease patients, the authors conclude that the SOC, although found to be relevant to their experience of the caring situation, may be difficult to influence (Caap-Ahlgren & Dehlin, 2002).

Improving the Impact of Hospital Functioning on Salutogenesis

Only few studies have an organizational perspective on options to enhance salutogenesis or the SOC, focusing not on additional patient-oriented interventions but on how hospital structures and routine care processes can be used or altered for salutogenic purposes. Concerning salutogenesis as a component in hospital policies, Buscher, Watzke, Koch, and Schulz (2004) note a clear deficit. Based on an analysis of the rehabilitative content of available guidelines for the treatment of patients with mental disorders in Germany, they conclude that none of the guidelines they examined contains explicit referrals to salutogenic aspects of the therapy. With regard to specific recommendations for change, Swenne and Skytt (2013) suggest ways to improve traditional ward rounds so as to allow for more patient participation which the authors consider essential for a good SOC. A paper co-authored by Antonovsky himself (Langius, Bjorvell, & Antonovsky, 1992) concludes that the SOC concept should be used to reflect on, and adapt, the way care is provided in hospitals, and Bruscia et al. (2008) call for an improvement in interdisciplinary cooperation to "help cardiac patients perceive life as comprehensible, manageable, and meaningful." With regard to hospital infrastructures, Hasfeldt et al. (2014) emphasize the need to keep ICU noise levels as low as possible especially to support patients with a low SOC.

Salutogenic Interventions by Different Healthcare Professions

Some authors conclude that healthcare professionals need a better general understanding of salutogenesis (e.g., Gilhooly et al., 2007; Helvik et al., 2012). The implications would be that salutogenesis and the SOC should be incorporated into the training curricula of healthcare staff. For this article, we could not assess in how far this is already the case. But we found at least one example, "The handbook of behavioral medicine" (Mostofsky, 2014) that contains several referrals to salutogenesis and its consequences for approaching patients.

Compared to doctors, nurses were more often suggested as potential providers of salutogenic interventions to patients. This probably indicates that nurses use salutogenesis as a concept for further professionalization,

and that salutogenic interventions are typically not understood as needing the specific skills of the medical profession. One paper by Menzies (2000) even describes nursing care as a generalized resistance resource in mental healthcare. And several papers outline that salutogenesis or the SOC could be used as guiding concepts for nursing interventions (e.g., Etzel, 2001; Heather, 2013; Mizuno et al., 2009; Onega, 1991; Skarsater et al., 2005). In relation to suicidality, Sjostrom et al. (2012) suggest including the SOC into nursing diagnoses. In a paper by Fok et al. (2005), nurses are recommended to design interventions to enhance the SOC in early phases of hospitalization for critically ill patients. Bergman et al. (2011) found that nurses should support patients after first-time myocardial infarction to identify their risk factors and to support individualized rehabilitation, especially by supporting comprehensibility.

Occupational therapists are another professional group mentioned in the literature. One paper by Schult et al. (2000) recommends they should use SOC measurements for working with chronic pain patients.

Salutogenesis in Relation to Hospital Staff

All in all, 24 papers with a focus on salutogenesis and hospital staff were identified and analyzed, both with regard to statistical information such as the year of publication and the provenance of the authors, and with relation to content (the use of Antonovsky's concept(s), the groups of staff addressed, and conclusions and consequences).

Papers were published between 1991 and 2014, and over time there was a clear increase of papers published annually (although not as strong as in the patient-oriented papers): While only five papers had been published in the first decennium of the observation period until 2000, there were already nine papers in the decennium from 2001 to 2010, and in the first 4 years of the third observed decennium from 2011 to 2014, ten papers had been published. Authors come from all continents with a majority from Europe (14 or 58 %), followed by Asia (5 papers or 21 %), Australia and the USA (2 papers or 8 % each), and Africa (1 paper or 4 %). The single country with most published literature in the field is Sweden (5 articles or 21 %).

Most articles have a focus on nurses (20 or 83 %). These typically refer to nurses in specifically demanding caring situations, such as cancer care (Palsson, Hallbert, Norberg, & Isovaara, 1994), palliative care (Ablett & Jones, 2007), or mental healthcare (Berg & Hallberg, 1999). Three studies are on mixed occupational groups (Hoge & Bussing, 2004; Nilsson, Andersson, & Ejlerstsson, 2013; Rabin et al., 2011) and only one study explicitly addresses doctors (Haoka et al., 2010).

Quite similar to papers on patients, most of the papers on staff are related to the SOC. The majority of these papers is of quantitative character, while a small number either uses the SOC as a theoretical construct to interpret qualitative data (e.g., Ablett & Jones, 2007; Bringsen, Andersson, Ejlerstsson, & Troein, 2012) or focus on the SOC conceptually (Malagon-Aguilera et al., 2012; Reid, Kruger, DeMarco, Hanley, & Conlin, 2004). The SOC is usually studied in relation to other areas of interest such as perceived work strain (Hoge & Bussing, 2004; Lewis et al., 1992; Orly, Rivka, Rivka, & Dorit, 2012; Palsson et al., 1994), perceived reward from work (Haoka et al., 2010), work-family conflict (Takeuchi & Yamazaki, 2010), self-rated health (Malinauskiene, Leisyte, Romualdas, & Kirtiklyte, 2011), and, most often, in relation to depression and burn-out in staff (Aries & Ritter, 1999; Cilliers, 2003; Kikuchi et al., 2014; Nordang, Hall-Lord, & Farup, 2010; Tselebis, Moulou, & Ilias, 2001). Studies typically conclude that lower SOC scores are related to lower levels of desired states, such as self-rated health, and to higher levels of undesired states, such as perceived work strain, conflict, or depression and burnout.

Six papers (25 %) show a more general salutogenic orientation. For example, Bringsen et al. (2012) describe focus group interviews with the aim to identify workplace-related health resources for hospital nurses, or Rabin et al. (2011) "looks at the wide spectrum of stressors found in specialists working in the mental health area . . . with the salutogenic approach in the background." Nilsson et al. (2013) present a questionnaire with a salutogenic perspective to guide workplace health promotion interventions.

Implications for Occupational Health in Hospitals

Similar as in studies on patients, SOC is so far mainly used to identify staff members at higher risk of developing problematic conditions, such as burnout, and thus being in need of extra support. Low SOC seems to be widely used as an indicator for the vulnerability of staff to work-specific stressors, while high SOC typically is understood as a buffer against job strain (e.g., Malinauskiene, Leisyte, & Malinauskas, 2009). But there are also some more resource-oriented papers such as the one by Bringsen, Ejlerstsson, and Andersson (2011) that has a more general salutogenic orientation and uses this lens to identify work-specific resources for staff, such as flow situations.

While some papers conclude by describing the study results (e.g., Aries & Ritter, 1999; Hoge & Bussing, 2004; Lewis, Bonner, Campbell, Cooper, & Willard, 1994; Malagon-Aguilera et al., 2012; Malinauskiene et al., 2009;

Nordang et al., 2010), others suggest interventions for improvements. Papers with a focus on the SOC often (but not exclusively) frame their conclusions more in the direction of risk orientation and risk reduction, while papers with a more general salutogenic orientation focus more on resource-strengthening. However, both perspectives come to rather similar recommendations with regard to suggestions for interventions. On the one hand, the recommended interventions refer to improvements of potentially strenuous work conditions such as high work load (e.g., Rabin et al., 2011) or generally adverse working conditions (Malinauskiene et al., 2011). On the other hand, support of individual staff members is recommended in form of supervision (Berg & Hallberg, 1999; Palsson et al., 1994), mentoring (Cilliers & Terblanche, 2014), mindfulness meditation (Foureur, Besley, Burton, Yu, & Crisp, 2013), training and peer support (Michael & Jenkins, 2001), or targeted support for staff with burn-out symptoms (Tselebis et al., 2001). Some authors also recommend a combination of organization- and individual-related interventions (e.g., Cilliers, 2003; Reid et al., 2004) as both may contribute to a better use of coping resources (Lewis et al., 1994). Bringsen et al. (2012), on the basis of a qualitative study, emphasize that different types of hospital staff may need different types of supportive interventions.

Less common and more recent are studies calling for actual improvements of low SOC in staff (e.g., Kikuchi et al., 2014). One study by Orly et al. (2012) describes the measurement of SOC scales in nurses pre and post cognitive-behavioral interventions, with significant improvements post intervention. In a similar study on the effects of mindfulness-based meditation, Foureur et al. (2013) also report positive effects, while Berg and Hallberg (1999) could not detect any significant improvements in SOC scores following supervision.

Summing up, while there seems to be increasingly strong evidence for the interrelations between SOC and the (mental) health of hospital staff, the literature is less clear with regard to the type of interventions that should be used either to compensate, or to improve low SOC.

Salutogenesis and Health-Promoting Hospitals

Since salutogenesis is referred to as one of the theoretical backgrounds of health promotion, it is worthwhile to explore in how far salutogenesis has so far been taken up in HPH, an international network initiated by WHO-Euro that aims at supporting the reorientation of hospitals toward health promotion (Milz & Vang, 1989; Pelikan et al., 2001; WHO, 1991, 1997).

HPH are based on a WHO initiative in relation to the settings approach in health promotion. They still seem to be

exotic birds in the hospital world: While the ten nation states with most hospitals per country alone have more than 150,000 hospitals (according to Maps of the World), the roughly 1000 member organizations of the International HPH network make far less than 1 per mille of the hospitals on the planet.

Following the Ottawa Charter's (WHO, 1986) demand to "reorient health services," WHO had started consultation on how to bring this approach into practice in 1988, focusing on hospitals as the core organizations in modern healthcare systems. Subsequently, a model project in Vienna (1989–1997), a European pilot hospital project (1993–1997) and an international network (starting in 1990) were initiated by WHO-Euro. Since 2008, HPH is an international nonprofit association, operates in all continents and is organized in about 40 national and regional networks, coordinated by an international supra-network with a general assembly and elected governance board, and is supported by specific thematic task forces and two WHO collaborating centers (Pelikan et al., 2011; Dietscher, 2012, 2013).

Content-wise, HPHs are oriented at the Ottawa Charter's definition of health promotion which is "the process to increase control over, and to improve, one's health" (WHO, 1986). Defined target or stakeholder groups of HPH are not only patients (and their significant others) but also staff and community members (people in neighborhoods and catchment areas). From the beginning, HPH was dedicated to principles of organizational development and quality improvement, understanding health promotion not (only) as additional (consultative) services but rather as the way health promotion is addressed and integrated into the core processes of healthcare organizations, as outlined in two policy papers, the Budapest Declaration on HPH (WHO, 1991), and the Vienna Recommendations on HPH (WHO, 1997). This background was the basis for formulating 18 HPH core strategies—six main HPH intervention areas, for each of the three defined target groups. These areas or principles are (1) to support healthy living in the organization (maintaining and strengthening healthy aspects while in care or, for staff, during working life), (2) to improve co-production, (3) to develop the physical and social healthcare setting into a health-promoting environment, (4) to empower for disease management, (5) to empower for healthy lifestyles, and (6) to contribute to health-promoting community development (Pelikan, Dietscher, Krajic, & Nowak, 2005) (Table 27.6). To support linking HPH to quality management, 5 standards (Gröne, 2006) and 7 implementation strategies (Pelikan, 2007) were also developed.

Summing up, a health-promoting hospital is actively attempting to integrate health promotion criteria into its decision premises and processes, and, consequently, taking comprehensive and continuous action to promote the health

Table 27.6 Eighteen HPH core strategies (Pelikan et al., 2005)

Target group strategy	Patients	Staff	Community
<i>Empowerment of stakeholders for health-promoting self-reproduction/self management</i>	Developing health-promoting living conditions for patients in the hospital	Developing health-promoting work life for staff	Developing health promoting access to the hospital for citizens
	<i>PAT-1</i>	<i>STA-1</i>	<i>COM-1</i>
<i>Empowerment of stakeholders for health-promoting coproduction</i>	Encouraging patients' participation, cooperation, and co-production in treatment and care	Encouraging health-promoting work processes	Developing health-promoting cooperation's with services in the region
	<i>PAT-2</i>	<i>STA-2</i>	<i>COM-2</i>
<i>Health-promoting & empowering hospital setting for stakeholders</i>	Developing a health-promoting hospital setting for patients	Developing a health-promoting workplace setting for staff	Developing the hospital as a health-promoting environment for the community
	<i>PAT-3</i>	<i>STA-3</i>	<i>COM-3</i>
<i>Empowering illness management (patient education) for stakeholders</i>	Encouraging patients' health-promoting self-management of specific diseases	Encouraging staff's health-promoting illness management	Participate in alliances to encourage citizens for a health-promoting self-management of specific diseases
	<i>PAT-4</i>	<i>STA-4</i>	<i>COM-4</i>
<i>Empowering lifestyle development (health education) for stakeholders</i>	Encouraging patients to lead a health-promoting lifestyle	Encouraging staff to lead a health-promoting lifestyle	Participate in alliances to encourage citizens to lead a health-promoting lifestyle
	<i>PAT-5</i>	<i>STA-5</i>	<i>COM-5</i>
<i>Participation in health-promoting & empowering community development for stakeholders</i>	Developing health-promoting living conditions for patients after leaving the hospital	Developing a health-promoting community setting for staff	Participate in alliances to develop health-promoting community settings
	<i>PAT-6</i>	<i>STA-6</i>	<i>COM-6</i>

of its patients, staff, and the population in the community it serves (Pelikan et al., 2001). A bibliography on published literature in the field of HPH was published by Dietscher, Pelikan, and Schmied (2014).

Conceptual and Practical Interlinks Between HPH and Salutogenesis

The above-mentioned official HPH documents do not contain any explicit referrals to salutogenesis. Still, HPH has an implicit salutogenic orientation, focusing on a comprehensive concept of health and on strengthening the resources for health (e.g., by empowerment), as well as on reducing risks for diseases for a wide set of target groups, no matter where they are on the health-disease continuum.

However, while Antonovsky's general concept and also his specific salutogenic model are typically understood as a psychological concept, or rather a theory on individual coping with challenges leading to tension and possibly stress, HPH—so as other setting-oriented health promotion strategies—is more oriented toward changing organizational characteristics that are either challenging or support coping for individuals and groups. HPH aims at using hospitals as settings in which both situative and individual health determinants can be addressed by individual as well as organizational interventions. In this respect, both concepts can be interpreted as complementary: salutogenesis provides

a concept that can be pursued by the intervention strategies of HPH. Furthermore, the SOC concept and questionnaires might be interesting tools for developing HPH. Measurement tools developed by HPH itself—such as the self-assessment tool for the five HPH standards (Gröne, 2006)—assess whether health-promoting structures (and partly also interventions) are in place. The SOC could—at least in principle—be used to design specific health promotion interventions and to measure their effectiveness. Although the scientific debate on whether the SOC is ultimately shaped during childhood and adolescence or whether it can be altered in later life is ongoing, empirical data quoted in this chapter seem to support the hypothesis that the SOC of an individual can be improved or decreased also in adult life besides being taken into account by the hospital. Therefore, it seems plausible to suggest that SOC measurements pre–post targeted interventions may also produce data on the effectiveness of health promotion interventions.

As far as we could detect from the abstract books of HPH conferences that were published over the last 10 years, 33 papers—less than 1 % of all abstract published during the observation period—had an explicit referral to salutogenesis. The number of related papers submitted annually seems largely related to the respective Calls for Papers (e.g., as the program of the HPH conference in 2011 in Turku, Finland, had a focus on salutogenesis, considerably more related papers than on average were submitted that

year). Target groups and applications of the salutogenesis approach in HPH papers were quite similar as in the literature search outlined in this article. One difference however was that HPH papers also included papers on salutogenic community interventions by hospitals, probably because community citizens are one of the three explicit target groups of HPH.

Apart from the conference papers, quite a number of international HPH activities can be clearly related to one or more dimensions of the SOC. For example, HPH task forces that address topics such as health-promoting psychiatric health care, health promotion for children and adolescents in hospitals, or migrant-friendly and culturally competent hospitals, have been systematically calling for better comprehensibility and manageability especially for vulnerable groups by adapting healthcare services to the needs of these groups.

Discussion and Conclusions

In this chapter, we contrast our theoretical considerations on the role salutogenesis could play in hospitals with the topics actually covered in the available reviewed literature. We will then discuss the limitations of our approach and suggest some resulting needs for further research.

A General Salutogenic Orientation and the Salutogenic Model

The literature in the hospital field that relates to a general salutogenic orientation of the hospital setting is scarce, as is the hospital-related literature referring to Antonovsky's complex salutogenic model. The few examples that exist remain rather normative and vague when it comes to concrete recommendations for resulting interventions to develop hospital's structures, cultures, and processes. While there exists some literature and research concerning the role of salutogenesis for the role and work of nurses, salutogenesis for and by medical doctors still is a potential to be discovered and implemented.

Concerning the general salutogenic model, in light of the available literature, especially three desiderata remain that provide ample room for future research and practice. First, following Antonovsky, a salutogenic approach means a consequent orientation at resources (not just risks). But a practical and hospital-specific (and partly even diagnosis-specific) concept and typecast of the health-relevant general and specific resistance resources of patients (and staff), as well as of interventions to activate them, is still lacking. Next to person-related resources such as physical, mental, and socio-economic resources, as well as personal lifestyles, this

typecast should also comprise resources related to the functioning of the hospital itself and to the way hospital core processes are run, as suggested by some of the papers quoted in this chapter. These hospital-internal resources would include caring styles, options for patient participation in treatment decisions and care, the support of patient health literacy (compare e.g., Brach et al. 2012), or the kind of support available at discharge, or when progressing from hospitals to other providers of care. Second, a set of applicable interventions that can effectively activate these resources, as well as evidence on their effectiveness, would be required. Third, it would be necessary to understand salutogenesis as a feature of organizational quality, not only as characteristic of interaction between individuals, and thus to develop and evaluate models for developing salutogenic organizational structures and capacities for supporting the salutogenesis of the people affected by these organizations.

Furthermore, with regard to Antonovsky's comprehensive salutogenic model, practically none of the papers refers to the model in its totality. If at all, papers used concepts such as coping with stress, or generalized resistance resources. Against this background, especially a more thorough reflection of the stressors hospitals themselves produce by their way of functioning, and measures to avoid them, would be desirable.

The Sense of Coherence

The vast majority of the literature retrieved for this article somehow relates to the SOC. However, the SOC is, rather paradoxically, widely used with a risk perspective rather than a resource perspective. By use of the diverse available SOC questionnaires, the SOC is typically treated as a diagnostic concept. Mainly, a low SOC score is understood as a risk factor for numerous conditions. And most studies treat the SOC as an absolute or fixed personality trait but do not reflect on how hospital structures and processes themselves can impact on the SOC and its dimensions of comprehensibility, manageability, and meaningfulness.

Which Intervention Approaches are Suggested for Whom?

In line with the outlined research perspectives, the salutogenic interventions suggested by the authors of the retrieved papers are, in line with medical interventionist thinking, mainly person-oriented, and here again, mostly relating to hospital patients, mainly with rather severe diseases. Few also address hospital staff, but rarely medical doctors and hardly any the people in the hospitals'

communities. Most papers refer to compensating for patients' limited SOC with specific supportive interventions. Only a minority of papers has an organizational approach, considering how the hospital functioning as such could reduce stress and improve comprehensibility, manageability, and meaningfulness for patients, staff, and visitors alike.

Furthermore, in contrast to Antonovsky's demand to "encompass all persons, wherever they are on the continuum" (Antonovsky, 1996, p. 14), the available research on salutogenesis and hospitals has a clear focus on the disease side of the continuum, widely treating limited SOC as a risk for self-perceived health, self-management, and quality of life.

Needs for Further Research

The literature reviewed for this article had no homogenous understanding of salutogenesis or the SOC. There seems to be good evidence for positive interrelations between salutogenesis, especially the sense of coherence, and subjective health, quality of life, and self-care ability. There is also evidence for positive interrelations between the SOC and mental health. However, it remains unclear and widely depending on the study perspective whether the SOC is viewed as a predictor, mediator (Tang et al., 2013), or moderator of desired outcomes, or even as an outcome itself. For example, while some authors see the SOC as a predictor of symptom severity, others interpret symptom severity and specific personality traits as impacting on the SOC. And in the emerging field of research on the SOC being an amenable concept, SOC levels are viewed as an outcome of interventions. Thus, it seems that more conceptual clarity on the role the SOC actually plays in relation to health still needs to be achieved and more complex designs to research this are needed. Furthermore, research is needed on the question why there is clear evidence for interlinks between the SOC and subjective health but hardly any proof for the SOC's impact on dimensions of health that do not appear directly related to subjective well-being or personal self-management.

When it comes to researching salutogenic interventions, we would argue that more emphasis should be given to researching the impact of hospital functioning and organizational interventions on salutogenesis or the SOC, and for person-oriented interventions, that more systematic research on the effectiveness of these interventions would be needed.

Finally, we suggest further research on the potential applicability of SOC measurements to assess the outcomes of health promotion interventions, both on the level of organizations and individuals, as well as concepts and research on implications for healthcare financing and healthcare curricula.

Limitations

The empirical part of this chapter is widely based on a systematic literature search and on a content analysis of abstracts of published research that contain explicit referrals to salutogenesis in relation to hospitals. Because of the inclusion and exclusion criteria that were decided upon, some papers that might be relevant for the context of this paper may have been overlooked if they do not contain explicit referrals to Antonovsky's concepts.

Furthermore, because of resource constraints, our analysis of the reviewed articles was limited to the abstracts of the retrieved and included papers. Since our main aim was to develop an overview on the topics that are already covered by hospital-related research in relation to salutogenesis, we consider this methodological decision justifiable. Still, more details could of course have been gained by a thorough analysis of the full papers.

As far as health promotion in hospitals is concerned, the international Network of Health-Promoting Hospitals and Health Services represents only a scarce but systematic and explicitly declared part of actual health promotion in hospitals. There is much more health promotion going on in hospitals, also without using the label, which also will have its links to salutogenesis.

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